AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.   (currently amended): A device for determining labeled data stream switchpath(s) in a label switched communication network comprising a multiplicity of label switched routers (LSR), each stream being associated with a chosen forwarding equivalence class and with a chosen set of service data, which device ~~is characterized in that it includes~~comprises:

——— a memory means ~~(Mn) adapted to store~~for storing a table ~~(Tn1)~~ of correspondences between sets of service data and information data representative of at least two chosen criteria and a descriptive structure ~~(Tn2)~~ containing information data representative of a state of utilization and of a topology of the network, and

——— a processing means ~~(P) adapted~~for:

a)   ~~to receive~~receiving a path set-up request containing a set of service data associated with a stream to be switched, and for determining in said table ~~(Tn1)~~ at least two criteria stored in corresponding relationship to said set of service data associated with the stream,

b)   ~~to ensure~~ensuring the connectivity of said multiplicity of ~~nodes~~label switched routers, on the basis of information data stored in said descriptive structure ~~(Tn2)~~,

c)   ~~to calculate~~calculating from among said ~~nodes~~ label switch routers ~~(LSR)~~ possible paths ~~(r*)~~ between a departure node ~~(LER1)~~ and a destination node ~~(LER2)~~ taking account of at least one of said two criteria that have been determined and then ~~to deduce~~deducing an ideal solution ~~(Z(x))~~ from performances ~~(Z(r*))~~ of said possible paths ~~(r*)~~ on at least one of said criteria,

2

d)   ~~to assign~~assigning each possible path ~~(r*)~~an interest value ~~(U(r))~~taking account of said ideal solution ~~(Z(n))~~and then ~~classify~~classifying said possible paths taking account of their respective interest values, and

e)   ~~to select~~selecting a path from among said classified possible paths and then ~~associating~~associate with said stream to be switched a label representative of said selected path so that said labeled stream is switched via said path to the destination node ~~(LER2)~~.

2.   (currently amended): A device according to claim 1, ~~characterized in that~~wherein said processing means ~~(P) are adapted to work~~works on the basis of sets of service data stored in said table ~~(Tn1)~~and representative of a type of service and/or a quality of service.

3.   (currently amended): A device according to claim 1, ~~characterized in that~~wherein at least some of said information data associated with a set of service data ~~being~~is representative of at least one local constraint, and

said processing means ~~(Pn)~~ ~~are adapted to determine~~determines from among said multiplicity of ~~nodes~~label switched routers ~~(LSR)~~ all of the pairs of ~~nodes~~label switched routers that can set up between them an oriented connection supporting each local constraint stored in corresponding relationship to a set of service data associated with said stream to be switched and then ~~to ensure~~ensuring the connectivity of all of the ~~nodes~~label switched routers of said pairs.

4.   (currently amended): A device according to claim 1, ~~characterized in that~~wherein some of said information data, associated with a set of service data, ~~being~~is representative of at least one global constraint, and

said processing means ~~(Pn) are adapted to retain~~retains from among said possible paths ~~(r*)~~those that satisfy each global constraint stored in corresponding relationship to a set of service data associated with said stream to be switched, so as to assign interest values ~~(U(r))~~only to said retained possible paths~~(r*)~~.

5.   (currently amended): A device according to claim 1, ~~characterized in that~~wherein at least one of said criteria is of the nonadditive type.

6.   (currently amended): A device according to claim 5, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted~~, when calculating possible paths ~~(r*)~~and deducing said ideal solution ~~(Z(n))~~, ~~to integrate~~intergrates a trace storing a route corresponding to a partial path, so as to detect and prevent the occurrence of cycles in the paths under construction.

7.   (currently amended): A device according to claim 6, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted to~~ retains~~retain~~ solutions that are "weakly nondominated" on each nonadditive criterion determined, during the procedure of eliminating said partial paths.

8.   (currently amended): A device according to claim 1, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted to verify~~ verifies said connectivity by applying a mechanism of propagation from the departure node ~~(LER1)~~to all the label switched routers~~other nodes~~ ~~(LSR)~~of said multiplicity of ~~nodes~~label switched routers, so that each ~~node~~label switched router~~(LSR)~~is visited.

4

9.   (currently amended): A device according to claim 1, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted to determine~~ determines for each path, values representative of its "performance" ~~(Z(r))~~ relative to each criteria determined and to qualify a path ~~(r)~~ for which said performance values ~~(Z(r))~~ are "nondominated" as a possible path ~~(r*)~~.

10.   (currently amended): A device according to claim 9, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted to determine~~ determines for each criterion determined, the best performance value ~~(Z*(r))~~ observed over said possible paths, referred to as the "optimum value", and then ~~to construct~~constructs said ideal solution ~~(Z(s))~~ in the form of a multiple of components consisting of the various optimum values determined.

11.   (currently amended): A device according to claim 10, ~~characterized in~~ ~~that~~wherein said processing means ~~(Pn) are adapted to assign~~assigns an interest value ~~(U(r))~~ to each possible path ~~(r)~~ when it characterizes the greatest value of the components, associated with the various criteria determined, of a weighted Tchebychev function, as a function of differences between the performance of said possible path ~~(r*)~~ and the corresponding optimum value of said ideal solution ~~(Z(s))~~.

12.   (currently amended): A device according to claim 11, ~~characterized in~~ ~~that~~wherein said processing means ~~(Pn) are adapted to preselect~~preselects k possible paths having the k lowest interest values ~~(U(r))~~ and then ~~to select~~selects a path from the k preselected paths.

5

13.   (currently amended): A device according to claim 12, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted to calculate~~calculates bidirectional paths.

14.   (currently amended): A device according to claim 12, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted to select~~selects from said k paths at least one other path dedicated to connection restoration.

15.   (currently amended): A device according to claim 3, ~~characterized in that~~wherein said local and/or global constraints determined belong to a group comprising at least the minimum bandwidth required, the maximum length of the path, the maximum duration of the path, a set of prohibited or mandatory connections, the maximum and/or minimum number of hops on the path, one or more mandatory nodes, one or more prohibited nodes, at least one authorized class of service, a set of path colors, a wavelength division multiplexing capacity, a concatenation capacity, an assignment capacity, and a protection capacity.

16.   (currently amended): A device according to claim 1, ~~characterized in that~~wherein said criteria belong to a group comprising at least the available bandwidth ~~(C2)~~, the number of hops on the path ~~(C3)~~, the duration of the path ~~(C1)~~, a wavelength division multiplexing capacity, a concatenation capacity, an assignment capacity, and a protection capacity.

17.   (currently amended): A device according to claim 16, ~~characterized in that~~wherein said criteria comprise the available bandwidth ~~(C2)~~and the duration of the path ~~(C1)~~.

18. (currently amended): A device according to claim 17, ~~characterized in that~~wherein said processing means ~~(Pn) are adapted to impact~~impacts said criterion applying to the duration of the path ~~(C1)~~by a penalty.

19. (currently amended): A device according to claim 18, ~~characterized in that~~wherein said penalty applies to the administration cost ~~(CA)~~of the path.

20. (currently amended): A device according to claim 1, ~~characterized in that~~wherein said correspondence table ~~(Tn1)~~comprises weighting factors associated with at least some of said criteria wherein each said weighting factor represents the ~~as a function of their~~ importance of each said respective criteria with respect to the other criteria.

21. (currently amended): A label edge router ~~(LER)~~for a label switched communication network, ~~characterized in that it comprises~~comprising a device according to claim 1.